

REMARKS/ARGUMENTS

Claims 1 and 5-9 are pending in this application. By this Amendment, Applicant AMENDS the specification and claims 1 and 5, and CANCELS claims 2-4.

Applicant has amended the specification to correct minor typographical errors contained in the previously filed substitute specification. Applicant's undersigned representative respectfully submits that these amendments do not add any new matter to the above-identified patent application.

Claims 7-10 were objected to under 37 CFR 1.75(c) as allegedly being in improper form because a multiple dependent claim cannot depend on any other multiple dependent claim. Applicant filed a Preliminary Amendment on June 7, 2005 correcting the improper multiple dependency of claims 7-10. Applicant respectfully submits that pending claims 7-10 are proper dependent claims. Accordingly, Applicant respectfully requests that the Examiner withdraw the objection to claims 7-10.

Claims 1-3, 6, and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Emerson (U.S. 3,353,895). Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Emerson in view of Aizawa et al. (U.S. 5,179,456). Claim 7 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Emerson in view of Kahn et al. (U.S. 3,016,071). Claims 9 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Emerson in view of Arakawa (U.S. 2002/0060762).

Applicant has amended claim 1 to incorporate the features of claims 2-4, now canceled. Accordingly, support for amended claim 1 can be found in, for example, original claims 2-4.

Applicant respectfully traverses the rejections of claims 1 and 5-9.

Claim 1 has been amended to recite:

A plastic substrate for use in optical instruments, the plastic substrate comprising:

a composite substrate in which fibers are embedded in a resin matrix, the fibers being arranged to extend in two nearly orthogonal directions within a plane of the composite substrate; wherein

the composite substrate substantially transmits visible radiation and has an in-plane retardation of substantially zero. (emphasis added)

With the unique combination and arrangement of features recited in Applicant's claim 1, including the features of "a composite substrate in which fibers are embedded in a resin matrix, the fibers being arranged to extend in two nearly orthogonal directions within a plane of the composite substrate" and "the composite substrate substantially transmits visible radiation and has an in-plane retardation of substantially zero," Applicant has been able to provide a plastic substrate that contributes to realizing a high-quality display when used as a substrate for a display device (see, for example, the first full paragraph on page 6 of Applicant's substitute specification).

With respect to original claim 4, now incorporated into claim 1, the Examiner alleged that Emerson teaches all of the features of the plastic substrate with the exception of the composite substrate having an in-plane retardation of substantially zero. The Examiner alleged that Aizawa et al. teaches that "the refractive indices in the orthogonal major axes of the optical plane are equal ($n_x=n_y$, column 5, lines 45-48), which means that the in-plane retardation is substantially zero (reduces the in-plane optical anisotropy to not higher than 1%, column 6, lines 55-60)." The Examiner further alleged that it would have been obvious to provide the composite substrate of Emerson with a negative uniaxial anisotropy "in order to provide effective optical compensation for the positive optical anisotropy of homeotropically aligned liquid crystal layer ... so as to widen the viewing angle of the display, as taught by Aizawa." Applicant respectfully disagrees.

The plastic substrate of Emerson is a light polarizer, and thus must be optically anisotropic in order to polarize light (see, for example, column 1, lines 11-15 of Emerson).

In contrast, the substrate 11 of Aizawa et al. is an optical compensator plate which compensates for the positive optical anisotropy of a liquid crystal layer (see, for example, column 1, lines 41-59 of Aizawa et al.). However, as acknowledged by the Examiner in the first full paragraph on page 5 of the outstanding Office Action, the

substrate 11 of Aizawa et al. is processed to reduce the in-plane optical anisotropy so as to have in-plane retardation of substantially zero.

Applicant respectfully submits that one of ordinary skill in the art would not have modified the light polarizer of Emerson to have an in-plane retardation of substantially zero in view of Aizawa et al., as alleged by the Examiner, because this would destroy the polarizing properties of the light polarizer of Emerson.

The Examiner is reminded that if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) and MPEP § 2143.01.

The Examiner's alleged motivation to modify Emerson in view of Aizawa et al. is incorrect and has no basis in fact because Emerson merely teaches a polarizer and not a liquid crystal display, and Emerson does not teach or suggest that the polarizer should or could be used to compensate for the positive optical anisotropy of a liquid crystal layer in a liquid crystal display. Thus, there is no proper motivation to modify the light polarizer of Emerson to have a negative uniaxial optical anisotropy and in-plane retardation of substantially zero in view of Aizawa et al.

Furthermore, the composite substrate of Emerson is incapable of being modified to have an in-plane retardation of substantially zero because the optical anisotropy due to the presence of the filaments 32 of Emerson cannot be reduced by heat and pressure, as taught by Aizawa et al. That is, heat and pressure, which is used in the process of Aizawa et al. to achieve negative uniaxial optical anisotropy and in-plane retardation of substantially zero, will not affect the alignment of the filaments 32 of Emerson which provide the optical anisotropy for the light polarizer of Emerson.

Thus, Emerson and Aizawa et al. would not and could not have been combined as alleged by the Examiner, and even if such a combination were possible, the alleged combination fails to teach or suggest the features of "a composite substrate in which fibers are embedded in a resin matrix, the fibers being arranged to extend in two nearly orthogonal directions within a plane of the composite substrate" and "the composite

substrate substantially transmits visible radiation and has an in-plane retardation of substantially zero" as recited in Applicant's claim 1.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Emerson. Applicant respectfully submits that the rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Emerson in view of Aizawa et al. was improper for the reasons indicated above, and that a rejection of claim 1, as amended, under 35 U.S.C. § 103(a) as being unpatentable over Emerson in view of Aizawa et al. would also be improper.

The Examiner relied upon Kahn et al. and Arakawa to allegedly cure deficiencies of Emerson and Aizawa et al. However, Kahn et al. and Arakawa clearly fail to teach or suggest the features of "a composite substrate in which fibers are embedded in a resin matrix, the fibers being arranged in two nearly orthogonal directions within a plane of the composite substrate" and "the composite substrate substantially transmits visible radiation and has an in-plane retardation of substantially zero" as recited in Applicant's claim 1. Thus, Applicant respectfully submits that Kahn et al. and Arakawa fail to cure the deficiencies of Emerson and Aizawa et al. described above.

Accordingly, Applicant respectfully submits that Emerson, Aizawa et al., Kahn et al., and Arakawa, applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in Applicant's claim 1.

In view of the foregoing amendments and remarks, Applicant respectfully submits that claim 1 is allowable. Claims 5-9 depend upon claim 1, and are therefore allowable for at least the reasons that claim 1 is allowable.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicant petitions the Commissioner for a ONE-month extension of time, extending to March 21, 2008, the period for response to the Office Action dated November 21, 2007.

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March 20, 2008

Reply to the Office Action dated November 21, 2007

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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